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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,271	10/17/2000	Se-Lee Chang	12495-002001	3672

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EXAMINER
BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/690,271	CHANG ET AL.	
	Examiner	Art Unit	
	Susan W Berman	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,4 and 6-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,4 and 6-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Response to Amendment

The rejection of claim 16 under 35 USC 112, first paragraph, is withdrawn in response to the amendment of claim 16.

Response to Arguments

Applicant's arguments filed 01-29-2003 have been fully considered but they are not persuasive.

Applicant indicates intent to delete the "Cross Reference of Related Application" section on page 1 of the Specification (paper number 6 filed 06-24-2002, page 7, first paragraph). However, this amendment has not been requested. The Examiner does not see any amendment to page 1 included in the response filed June 24, 2002.

Applicant argues that Duecker teaches that the urethane acrylate that is silicone-modified is a polyether-based urethane acrylate and that the instant claims recite a urethane acrylate prepared from a mixture including a non-polyether-based polyol compound containing polydimethylsiloxane. This argument is not persuasive because the reaction mixture set forth in claim 4 includes "ii) a second polyol compound" which could be a polyether polyol or other polyols that would provide a polyether urethane acrylate containing polydimethylsiloxane moieties. Applicant employs a tetrahydrofuran propylene oxide ring opening (opened?) diol as the second polyol in Example 1.

Specification

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973). The section entitled cross reference to

related applications on page 1 should be deleted. This section should refer only to applications filed in the United States.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 11 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 9, it is not clear what is intended by "tristhylamine". Does applicant intend to claim "trisethylamine" or 'trismethylamine" or another amine? In claim 11, line 7, the word "type" in the phrase "ethylene oxide added type triethylpropane triacrylate" renders the definition of the compound indefinite. It is suggested that the name "ethoxylated trimethylolpropane triacrylate", as set forth on page 8 in the specification be employed. In claim 16, it is not clear what is meant by" and is prepared for providing the surface slipping characteristics". Does applicant intend to set forth that the 23 dyne/cm^2 or less surface tension to provide surface slipping characteristics? Or does applicant intend to set forth an additional step in the method of preparation set forth in claim 15?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4, 6-9 and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duecker (6,122,428, having an effective filing date of 06-27-1989) in combination with Szum et al (6,110,593). Duecker discloses radiation curable compositions for securing optical fibers in a matrix of an

optical fiber cable. The compositions comprise a polyether-based urethane acrylate that, in a preferred embodiment, is silicone-modified by co-reacting silicone into the polyether portion of the backbone and is said to provide desirable release characteristics vis-a-vis the ink (column 4, lines 17-51). The compositions also contain a monomer, a photoinitiator and a stabilizer (see columns 4-5, column 6, lines 8-47 and column 7, line 20-44). Duecker does not specifically mention the method for preparation of the silicone-modified urethane acrylate, such as the specific polyols, polyisocyanate or hydroxy-functional acrylate employed to provide the silicone-modified polyether urethane acrylate. However, EBECRYL 4842, equivalent to CHEMPOL 19-4842, is disclosed as an example of a silicone-modified polyether-based urethane acrylate. See the Examples. Duecker does not specifically mention adding a leveling/defoaming agent to the composition comprising the urethane acrylate , but does teach that optional ingredients may be added.

Szum et al disclose radiation curable optical fiber primary coating systems. The disclosed slip enhancing component is a composite oligomer comprising a glass coupling moiety, a slip agent moiety and at least one radiation curable moiety. See column 9 to column 15. Oligomeric silicone slip agent moieties are taught from column 11, line 61, to column 12, line 18. radiation curable moieties are taught in column 12, lines 40-54. Linking groups can be urethane, thiourethane or urea (column 13, lines 18-28) Oligomeric structure is taught form column 13, line 29, to column 14, line 19. Radiation curable compositions comprising a different radiation curable oligomer, a reactive diluent, a photoinitiator and additives such as antioxidants are disclosed from column 14, line 55, to column 15, line 6. Example 1-1 discloses a conventional synthesis of a polydimethylsiloxane-containing urethane acrylate oligomer in the presence of a urethane catalyst and a polymerization inhibitor. Szum et al further disclose radiation curable silicone oligomers prepared from a silicone compound with hydroxyl functionality reacted with a diisocyanate and hydroxyethylacrylate, including "Hsi2111" (Tego Chemie), to provide a fiber friction

that results in a resistive force less than the cohesive strength of the inner primary composition (column 20, line 54, to column 21, line 57, and Example 3-1).

It would have been obvious to one skilled in the art at the time of the invention to employ a silicone compound having hydroxyl functionality, as taught by Szum et al in analogous art, to provide the silicone-modified polyether-based urethane acrylates in the compositions disclosed by Duecker. It would have been obvious to one skilled in the art at the time of the invention to prepare the silicone-modified urethane acrylate in the presence of a urethane catalyst and a polymerization inhibitor, as taught by Szum et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of success because the reaction of polyols, polyisocyanates and hydroxy-functional acrylate in the presence of a urethane catalyst and polymerization inhibitor to provide an acrylated urethane having a desired backbone provided by the polyols employed is well known in the art, as shown by the disclosure of Szum et al. Szum et al provide motivation to employ a silicone compound with hydroxyl functionality in order to provide a fiber friction that results in a resistive force less than the cohesive strength of the inner primary composition for optical fibers. Duecker et al provide motivation to use a silicone-modified urethane acrylate by employing such compounds in the Examples. With respect to claims 16, 18 or 19, these properties are not mentioned by Duecker. Szum et al report "fiber pull-out friction in g/cm". There is no comparative data of record representative of the disclosure of Duecker to show that the properties set forth in the claims are unexpected. The comparative examples in the specification comprise (1) a urethane acrylate based on polycaprolactone polyol and polytetramethylene glycol or (2) a polyester oligomer.

Claims 3,4 and 6-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Duecker (6,122,428, having an effective filing date of 06-27-1989) in view of Shustack (5,908,873) and further in view of Ohtaka et al (5,787,218). Duecker discloses radiation curable compositions for securing optical

fibers in a matrix of an optical fiber cable. The compositions comprise a polyether-based urethane acrylate that, in a preferred embodiment, is silicone-modified by co-reacting silicone into the polyether portion of the backbone and is said to provide desirable release characteristics vis-a-vis the ink (column 4, lines 17-51). The compositions also contain a monomer, a photoinitiator and a stabilizer (see columns 4-5, column 6, lines 8-47 and column 7, line 20-44). Duecker does not specifically mention the method for preparation of the silicone-modified urethane acrylate, such as the specific polyols, polyisocyanate or hydroxy-functional acrylate employed to provide the silicone-modified polyether urethane acrylate. However, EBECRYL 4842, equivalent to CHEMPOL 19-4842, is disclosed as an example of a silicone-modified polyether-based urethane acrylate. See the Examples. Duecker does not specifically mention adding a leveling/defoaming agent, but does teach that optional ingredients may be added.

Shustack discloses analogous compositions for radiation curable matrix materials for affixing fibers in a ribbon configuration. The compositions comprise an aliphatic urethane acrylate oligomer, such as silicone-modified EBECRYL 4842, a reactive monomer, a release agent, a photoinitiator and an antioxidant. The release agent taught by Shustack and used in the examples corresponds to the leveling/defoaming agents disclosed by Applicant (column 10, lines 37-46 and the Examples). Shustack teaches compositions for preparation of the urethane acrylate oligomer comprising polyols, polyisocyanate, hydroxyalkyl(meth)acrylate and a urethane catalyst, (column 6, line 63, to column 8, line 54).

Ohtaka et al teach that it is known in the art to employ a urethane catalyst and a polymerization inhibitor to prepare urethane acrylate oligomers. The urethane acrylate oligomers disclosed include polydimethylsiloxane-modified urethane acrylates obtained from diol compounds with a polydimethylsiloxane terminal group or polydimethylsiloxane carbitol-modified diols. The disclosed urethane acrylates are prepared by reaction of polyol(s), diisocyanate and hydroxy-functional acrylate in

the presence of a urethanization catalyst, such as dibutyltindilaurate, and a polymerization inhibitor, such as a methylphenol compound and phenothiazine. See column 5, lines 24-30, and Examples 1-3.

Duecker does not mention the preparation or components of the disclosed silicone-modified urethane acrylate. Thus Duecker does not discuss specific silicone polyols or using a urethane catalyst or polymerization inhibitor in the preparation of the silicone-modified urethane acrylate. Shustack teaches urethane catalysts for preparation of analogous silicone-modified urethane acrylate oligomers, but does not mention polydimethylsiloxane polyols or adding a polymerization inhibitor. Ohtaka et al teach using a polymerization inhibitor and a urethane catalyst in a method for preparation of a urethane acrylate oligomer from polyols, polyisocyanates and hydroxy acrylate monomers, analogous to the urethane acrylate oligomers taught by Duecker and Shustack. Ohtaka et al also teach that the polyols employed to prepare urethane acrylates can be diols with a polydimethylsiloxane terminal group or polydimethylsioxane carbitol-modified diols.

In the absence of evidence to the contrary, it is the examiner's position that one of ordinary skill in the art at the time of the invention would have immediately envisioned that the silicone-modified urethane acrylate taught by Duecker and/or Shustack is synthesized from a hydroxyl-terminated polydimethylsiloxane with a polyisocyanate and an acrylate alcohol. The reason is that Duecker and Shustack each teach that the disclosed urethane acrylates are based on polyether polyols reacted with polyisocyanate and acrylated and that other kinds of polyols, including silicone-containing polyols, can also be incorporated. It would have been obvious to one skilled in the art at the time of the invention to employ a hydroxy-functional polydimethylsiloxane as one of the polyol components to provide a silicone-modified urethane acrylate as disclosed by Duecker or Shustack, as taught by Ohtaka et al. It would have been obvious to one skilled in the art at the time of the invention to employ a urethane catalyst, as taught by Shustack or Ohtaka et al in analogous art, to prepare the silicone-modified urethane acrylate disclosed by Duecker. It would have been obvious to one skilled in the art at the time of the invention to employ a

polymerization inhibitor such as phenothiazine, to prepare a urethane acrylate oligomer to use in the compositions disclosed by Duecker and Shustack, as taught by Ohtaka et al. One of ordinary skill in the art at the time of the invention would have been motivated by a a reasonable expectation of successfully providing a silicone-modified urethane acrylate. The reason is that use of known urethane catalysts and polymerization inhibitors to prepare a urethane acrylate is well known in the art, as shown by the disclosure of Shustack or Ohtaka et al. It would have been obvious to one skilled in the art to employ a release agent as disclosed by Shustack as an additive in the compositions disclosed by Duecker in order to obtain the benefits of the properties thereof. With respect to claim 13, the release agent taught by Shustack and used in the examples corresponds to the leveling/defoaming agents disclosed by Applicant. With respect to claims 16, 18 or 19, these properties are not mentioned by Duecker. There is no comparative data of record representative of the disclosure of Duecker to show that the properties set forth in the claims are unexpected. The comparative examples in the specification comprise (1) a urethane acrylate based on polycaprolactone polyol and polytetramethylene glycol or (2) a polyester oligomer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

Susan Berman

Susan W Berman
Primary Examiner
Art Unit 1711

SB
March 28, 2003